

in this way only can the effect be made more lasting and complete. For this purpose direct fifteen grains to be taken every two or three hours. Further, it should be prescribed for at least twelve days after the pain has been relieved. It may be administered in solution or in fifteen-grain wafers, which should be dissolved in a definite quantity of liquid—an alkaline water, or a half glass of Vichy (Célestins). Because the drug is a local irritant it should never be administered in a concentrated solution. In case of pregnancy it should be administered cautiously in divided doses. The albuminuria of rheumatic origin is not a contra-indication to the use of this drug, but when it precedes the rheumatism, and especially when it is due to a renal lesion which impairs the permeability of the kidneys, it is contra-indicated, but the dangers of its use have been exaggerated.—*Journal des Praticiens*, 1894; 2d Semestre, 1894, No. 41, p. 513.

#### THE TREATMENT OF DIPHTHERIA.

DR. B. VAND. HEDGES presents what he terms the rational treatment: (1) Thorough disinfection with hydrogen peroxide solution, rendered neutral with sodium bicarbonate. (2) Administration of freshly prepared pineapple juice, either alone or with the tincture of ferric chloride if a condition of anæmia exists. (3) Application of papoid, either by insufflation of powder or painting with strong solution. (4) Alcohol given in heroic doses. (5) Strychnine administered hypodermatically and pushed until there is an exaggeration of the deep reflexes. (6) Concentrated nutritious diet.—*New York Medical Record*, 1894, vol. xlvii. p. 682.

#### DIPHTHERIA ANTITOXIN.

DRS. J. W. WASHBOURN, E. W. GOODALL, and MR. A. H. CARD report a series of eighty cases. Of these, eight were excluded because they were not clinically, as well as bacteriologically, cases of diphtheria. Of the seventy-two cases, only sixty-one showed diphtheria bacilli, and of these thirteen died. There were nine cases upon which tracheotomy was performed, with six recoveries. Twenty of these sixty-one cases were, upon admission, suffering from the toxic effects of diphtheria, and an unfavorable prognosis was made; eight of these cases recovered. There is no evidence that the antitoxin diminishes the incidence of albuminuria. It is still too early to speak of the effect in the incidence of paralysis, but so far six cases have occurred. A rash occurred in twenty-four per cent. of the cases in from seven to nineteen days after the injection. In six cases there were joint pains which appeared about the same time as the rash, and lasted, at the most, three days, the hip being more frequently attacked. The dose is to be regulated, not by the age or weight of the patient, but by the severity of the attack.—*British Medical Journal*, 1894, No. 1773, p. 1417.

DR. OTTO TREYMANN reports a case of acute hemorrhagic nephritis after the use of Behring's antitoxin. The patient, a boy of three years, upon the third day of his diphtheria received the antitoxin. This treatment was repeated upon the two days following, omitted for six days, then a single injection. Upon the following day there was noticed an eruption, bad gen-

eral condition, and albumin in the urine. The next day the urine was scanty, of hemorrhagic color, coagulating on heating. Microscopical examination showed numerous red and white blood-corpuscles, a few casts, and epithelial cells. Esbach's albuminometer showed that it contained 4 per cent. of albumin. Six days after, the albumin disappeared and convalescence was established.—*Deutsche medicinische Wochenschrift*, 1894, No. 51, S. 951.

#### BLOOD-SERUM THERAPY.

DR. GEORGE E. KRIEGER in a seventy-page book gives an interesting *résumé* of this subject, including the antitoxins. Taking as the text the fact established by Behring, that the blood and blood-serum of an individual which has been artificially rendered immune against a certain infectious disease may be transferred to another individual with the effect to render the latter also immune, no matter how susceptible this animal is to the disease in question, he adds the statement of Behring and Kitsato, that the immunity of rabbits and mice, when rendered immune against tetanus, is based upon the ability of the blood-serum to neutralize the toxins produced by the tetanus bacilli. Tetanus is next considered; a brief summary of the cases in which the tetanus antitoxin of Tizzoni and Cattani has been used; most of these cases are already familiar to the readers of this JOURNAL (Department of Progress). The rules for the use of this antitoxin are as follows: 1. Since the reaction is usually proportional to the quantity of poison introduced into the organism, an early and thorough antiseptics should be observed in dressing the original wound. 2. The best means for the efficacious neutralization of tetanus germs and toxins have been found to be a strong solution of sublimate with tartaric acid, and especially the cautery. 3. The amputation of the infected part, even if the latter is of minor importance, will hardly afford any benefit, because the soluble poison is rapidly absorbed and carried into the circulation. 4. As soon as the place of infection has healed, no beneficial results can be expected from local treatment, and no time should be lost in using the antitoxin in doses to effect the best possible immunity. 5. The quantity of antitoxin to be injected is determined according to the strength of the latter, the gravity of the infection, provided there are visible symptoms, the time since the infection has occurred, and the age of the patient. The shorter the time of incubation or the more serious the latter, the larger ought to be the first dose of antitoxin. 6. The number of injections necessary to save the patient depends also on such circumstances as are just mentioned; but, as a rule, one injection should be administered every other day with a somewhat smaller quantity than was used at first, in order to maintain a sufficient immunity and so prevent a relapse, which occasionally occurs, even after the immunity has set in, and which is due to a premature elimination of the antitoxin. For diphtheria it can be said (1) every case should be treated in its incipency locally with such antiseptics as seem fit to suppress a mixed infection. (2) The antitoxin will be of so much better effect, even in cases of mixed infection, the sooner a proper dose of antitoxin is administered. (3) The seriousness of a diphtheria infection is frequently underestimated, and for this reason it seems advisable to apply rather large than insufficient doses; for light cases two to

three hundred immunizing units, for severer ones, especially after tracheotomy, five to eight hundred units. (4) The application of the serum has to be repeated according to the gravity of the case, on the next day, or even on the same day, until a quantity of six to ten hundred or more units has been injected. (5) The administration of a serum of high potency is preferable to the corresponding amount of a weaker preparation. Used as a prophylactic, an average of one to two hundred immunizing units is sufficient to protect a healthy child against infection. As the immunity gradually decreases according to the elimination of the antitoxin, if no additional injections are given, it is evident that its duration also depends upon the quantity first administered. On the other hand, one can maintain an immunity for a longer period by repeated application of smaller doses at certain intervals.

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#### THE ACTION OF SODIUM BICARBONATE ON THE GASTRIC FLUIDS.

MM. G. LIROSSIER and G. H. LEMOINE have made a clinical study of this much-discussed subject, and formulate the following conclusions:

1. The excitation following the administration of this drug is the result of its immediate action upon the gastric fluids; the consecutive depression is connected with the general action of the drug, namely, the alkalinization of the blood.

2. In practice, for obtaining and keeping within the excitant action of the drug, it is necessary to employ moderate doses given before the meal, and continue the treatment for short periods. For the sedative action large doses during or after the meal, and for considerable periods of time, are necessary.

3. Whether a dose is large or small depends entirely upon the condition of the gastric secretion. The sensibility of the stomach to this drug is inversely as the contained hydrochloric acid.

4. The above conclusions apply also to Vichy water and probably to the other waters containing sodium bicarbonate.—*Bulletin Général de la Thérapeutique*, 1894, 46e liv., p. 492.

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#### CERTAIN PROCESSES OF BRINGING ON MENTAL QUIETUDE.

MR. H. C. SEN believes that there is a physiological alternate erectility of the mucous membrane covering the posterior parts of the middle and inferior turbinate bones, lasting for about an hour and a half to three hours; this being independent of any nasal disease. When the mind is free from any anxiety, and occasionally after a hearty dinner, or after a refreshing bath, both of the nasal mucous membranes become simultaneously free from any erectility, this freedom being always of short duration and concomitant with a peculiarly peaceful state of mind. Those persons who are able to insert their tongue-tip into their own naso-pharynx, find that they enjoy a peculiar pleasurable sensation, and that their power of concentration of mind remains stronger. From both of these causes the current of tidal air becomes feebler without producing any discomfort. As the current of tidal air becomes feeble the mind shows a tendency to quietude and steadiness. To prevent the mind from becoming unsteady, concentration of the mind to the different regions

of the spinal column is often advised, traversing the whole length in an upward and downward direction with inspiration and respiration alternately. These processes for producing concentration of the mind are called by the Hindus *yogakarma*, and if practised under the direction of an expert *yogi-gurn* are marvellously beneficial.—*MS. Report*, 1894.

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## PAPAIN.

DR. A. HIRSCH reviews the literature of this remedy and has made a very careful laboratory study. The especial method of administration is that it shall be suspended in the smallest possible quantity of water, given immediately after the meal, and repeated two or three times at from fifteen to thirty minutes, and in doses which are not too small—four, five, or seven grains. In addition careful regulation of the diet is by no means to be neglected if success is to follow the administration of the drug.—*Therapeutische Monatshefte*, 1894, Heft 2, S. 609.

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## OREXIN HYDROCHLORIDE.

DR. FERDINAND BATTISTINI has carried out a series of experiments to determine the value of this drug. Severe toxic symptoms have not been noted; in cases where the remedy has been used for more than six weeks there is a lessening of the hæmoglobin. In artificial digestion it apparently has no effect upon peptonization. As regards the appetite—of twenty-five cases it failed in six, a slight increase in thirteen, and a marked improvement in six. The results are apparently not very encouraging for the remedy, although some failures may have arisen from the use of the remedy in pill-form.—*Therapeutische Monatshefte*, 1894, Heft 12, S. 614.

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## RHUS TOXICODENDRON.

DR. H. M. WHELPLEY, recognizing toxicodendric acid as the active medicinal and poisonous principle of the plant, has ascertained that handling of the dried and compressed plant will produce the well-known eruption, although its poisonous action may be impaired by drying. The drug has been recommended as useful in a large number of morbid conditions, from nocturnal incontinence of urine to pemphigus. Among the antidotes to its poisonous action may be cited: solution of chlorinated lime, cold lead-water, sodium hyposulphite, saturated tincture of lobelia, hamamelis, bismuth subnitrate, phenol, linseed oil, strong coffee, and potassium permanganate.—*Bulletin of Pharmacy*, 1894, No. 12, p. 552.

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## ETHYL BROMIDE.

DR. CHARLES GREENE CUMSTON states that this drug is fit for administration only when it is (1) extremely volatile, (2) colorless, (3) and of a sweet and ethereal odor. The dose varies from three drachms (child of two years) to six drachms (adult). Food, even a glass of milk, is absolutely forbidden upon the day of operation. The mask should perfectly cover the mouth and nose, so that no air is allowed to enter. The entire dose should be given at